REMARKS

This paper is in response to the official action of October 16, 2004, and is timely filed, as it is accompanied by a petition for extension of time to file in the first month, and the requisite fee.

Claim 1 and claims dependent thereon are amended to recite a "first" movable part and to recite means for measuring the displacement of the fixed part relative to the first movable part and for supplying a measuring indicative of the relative displacement.

Claims 6-18 have been amended to recite that the shock absorber includes a movable second part, in order to provide antecedent basis for that element in these claims.

Claim 9 has been amended to provide a period at the end of the claim.

Claim 13 has been amended to correct its dependency, thereby providing antecedent basis for "each transmission unit."

Claim 18 has been amended to recite means for measuring the displacement of the fixed part relative to the movable part and for supplying a measuring signal indicative of the relative displacement. Claim 18 has also been amended to recite that the magnetic field used for compensating the weight of the movable part generates a quasi-linear compensating force within the excursion range of the movable part relative to the fixed part.

It is believed that the objections to claims 6-9 and 13 have been overcome by the foregoing amendments. Withdrawal of the objections is solicited.

The claim rejections based on Aehnelt et al. taken alone or in combination with the secondary references, including Ernst, are respectfully but strongly traversed. Reconsideration in view of the foregoing amendments and the following comments is solicited.

The claimed invention is distinguishable from the disclosure of Aehnelt. Aehnelt discloses a touch trigger probe head (sometimes also referred to as switching probe head). In such a probe head the movable part is coupled by means of a spring and an electric switch to the fixed part. The electric switch opens an electrical circuit by the action of the movable part (the stylus tip) touching the surface to be measured. Therefore, a bias force exerted by the spring has to be overcome in order to actuate the electric switch. As a result, such a probe head exhibits a lower measuring precision. Aehnelt is clearly directed to such a switching-type probe head as can be taken for example from its abstract.

In contrast thereto, a touch probing device, as recited in amended claim 1, (an analog probe head) measures the relative displacement of the movable part with respect to the fixed part. The displacement is represented by a signal indicative of the displacement.

In this regard see, for instance, the following web source:

http.//www.renishaw.com/client/publicity/UKEnglish/glossary.html

which contains the following definition:

Analog probe	A proportional probe in which the displacement of the stylus is represented by a continuously variable out voltage or current proportional to the displacement.
Kinematic switching probe	A contact probe in which the kinematic seating forms an electrical circuit that is broken by the action of displacing the stylus, to provide the trigger signal. After displacement, the stylus ball returns to the highly repeatable position defined by the kinematic location points.

Ernst discloses an analog probe head. However, it does not show any shock absorber, in contrast to the examiner's position. The leaf spring 7 in Ernst acts between the movable part (spacer pin 4) and the fixed part (housing 2). According to claim 1, the shock absorber couples the contact means (which would correspond to the feeler ball 5 in Ernst) and the first movable part (spacer pin 4 in Ernst). However, in Ernst there is no such shock absorber between the feeler ball 5 and the tracer pin 4. The leaf spring 7 serves to provide for the bias force and a certain flexibility in the direction of the three co-ordinates. The specific configuration of the leaf spring 7 in Ernst having a cross form allows for a larger measuring range along the z-direction and a rather limited measuring range along the X and Y directions (Ernst, col. 2, lines 59-65). Furthermore, the leaf springs in Ernst do not function as a shock absorber at all, since they have a completely different kinematic behavior as a shock absorber. A shock absorber should have a small mass and a relatively high stiffness which is disposed in series with the big mass of the movable and fixed part having a very low stiffness due to the parallel kinematic motion transmission assembly coupling the fixed part with the movable part.

Further, the invention recited in claim 18 is readily distinguishable from the Aehnelt reference.

In Aehnelt, the switching-type probe head is horizontally orientated. The magnetic field of the permanent magnets 5 and 6 in Aehnelt generate a magnetic field that is perpendicular to the direction of loading the movable part into its at-rest (undeflected) null

position in the probe head. As the strength of the magnetic field depends on the gap width between the two magnets 5 and 6, the compensating force is neither linear along the horizontal direction of loading the movable part nor in the directions perpendicular thereto. This is in contrast to amended claim 18. In a touch probing device according to claim 18, wherein the displacement of a movable part with respect to a fixed part is measured, a magnetic field generating a non-linear compensating force within the excursion range of the movable part would lead to serious measuring errors. The invention has increased the measuring precision by providing for a magnetic field that generates the quasi-linear compensating force.

It is submitted that the secondary references do nothing to remedy the deficiencies of the Aehnelt and Ernst references, and withdrawal of the outstanding rejections is solicited.

Should the examiner wish to discuss the foregoing, or any matter of form in an effort to advance this application toward allowance, he is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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By: _____

November 12, 2004

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